

ABSTRACT

An optical fiber including center and first side cores in which an apparent refractive index differences of the center and first side cores are 1.15 to 1.40% and -0.60 to -0.35, respectively. A constant  $\alpha$  is 1.0 to 5.0,  $b/a$  is 1.6 to 2.4, a dispersion value is -60 to -35 ps/nm/km, a dispersion slope is -0.40 to -0.10 ps/nm<sup>2</sup>/km, a transmission loss is 0 to 0.35 dB/km, FOM is 120 to 500 (ps/nm)/dB, PMD is 0 to 0.15 ps/ $\sqrt{\text{km}}$ ,  $A_{\text{eff}}$  is 19 to 50  $\mu\text{m}^2$  when the wavelength is 1.55  $\mu\text{m}$  band, and a bending loss at a diameter of 20 mm is 0 to 5 dB/m.